

#### ABSTRACT

A semiconductor laser is disclosed with which  
a VCSEL can be constituted with a simplified  
configuration for optical transmission at a transmission  
5 rate higher than 10 Gbps. The semiconductor laser  
includes a resonator including a first active region able  
to emit light in response to current injection and a  
second active region able to emit light in response to  
external excitation light. Multilayer film reflecting  
10 mirrors sandwich the resonator from two opposite sides.  
The first active region and the second active region  
generate light at a wavelength the same as the resonance  
mode of the resonator.